

REMARKS

Claims 1-58 are currently pending in the application. Claims 1-3, 5-14, 16-26, 28-46, 48-50, and 52-58 stand rejected, and claims 4, 15, 27, and 51 stand objected to. Applicant respectfully requests reconsideration of the application in view of the remarks set forth herein. It is respectfully noted that a Notice of Appeal is filed concurrently with this response.

Interpretation of Claims

Before addressing the prior art rejections maintained by the Examiner, the Applicant's undersigned attorney would first like to address the Examiner's interpretation of the claims.

In response to the Applicant's prior communication filed October 9, 2002, the Examiner sets forth the following interpretation of certain limitations in the independent claims:

In response to Applicant's argument that Dramstad et al do not show the limitations as claimed in independent claims 1, 33, and 46 the Examiner points out that Dramstad does, in fact, show the "mounting portion", "mounting means", the "routing portion" and the "routing means" as termed by the Applicant. The Examiner also points out that a "mounting portion" in an apparatus *is determined to mean, "a portion or surface that something (in the instance case, a card connector) can be mounted on,* and a "routing portion" in an apparatus *is determined to mean, "an element or device that is used to route something (in the instant case, electric signals) from one place to another.*

Dramstad et al at least shows these limitations (refer to the elements and Figures as outlined above). Final Office Action, at page 18.

While it is understood that claims must be given their broadest, reasonable interpretation during examination – see M.P.E.P. § 2111 – this rule of claim interpretation is not without limitation. In particular, express claim limitations cannot be wholly ignored by the Examiner. For example, an anticipation rejection under 35 U.S.C. § 102 can only be maintained if *each and every limitation* recited in a claim is found in a single prior art reference. See M.P.E.P. § 2131. Similarly, to establish a prima facie case

of obviousness under 35 U.S.C. § 103, a prior art reference or combination of references must teach or suggest *all of the limitations* of a claim. See M.P.E.P. § 2143.

As noted above, the Examiner has determined that the claimed “mounting portion” is a “portion or surface that something (in the instant case, a card connector) can be mounted on.” This definition ignores express claim limitations. For example, with reference to claim 1, the recited mounting portion includes:

- (1) a first card connector,
- (2) a second card connector,
- (3) a first communication path to route at least one signal line from a first card connector on a circuit board to the first card connector on the mounting portion, and
- (4) a second communication path to route at least one signal line of a second card connector on the circuit board (this signal line having been routed to the mounting portion by a communication path of the routing portion) to the second card connector on the mounting portion.

Thus, the interpretation of a “mounting portion” proffered by the Examiner does not include the limitations of the second card connector, the first communication path, and the second communication path. It is at least the second card connection and the second communication path that distinguishes the claimed invention from the cited art.

Further, as noted above, the Examiner has determined that the claimed “routing portion” is a “element or device that is used to route something (in the instant case, electronic signals) from one place to another.” Again, this definition ignores express claim limitations. The claimed routing portion does not simply route signals “from one place to another.” As recited in claim 1; for example, the routing portion includes a “communication path . . . to route at least one signal line from a second card connector on the circuit board to the mounting portion.”

In addition, the above-noted interpretations of the limitations of a “mounting portion” and a “routing portion,” respectively, are inconsistent with the specification. See *In re Morris*, 44 U.S.P.Q.2d 1023, 1027 (Fed. Cir. 1997) (stating that “it would be unreasonable for the PTO to ignore any interpretive guidance afforded by the applicant’s written description”); *Rowe v. Dror*, 42 U.S.P.Q.2d 1550, 1555 (Fed. Cir. 1997) (stating that “claims receive their broadest reasonable meaning” during the examination process, but this “does not relieve the PTO of its essential task of examining the entire patent disclosure to discern the meaning of claims words and phrases”); and *In re Sneed and Young*, 218 U.S.P.Q. 385, 388 (Fed. Cir. 1983) (stating that it “is axiomatic that, in proceedings before the PTO, claims in an application are to be given their broadest reasonable interpretation consistent with the specification”).

Paragraphs [0029], [0031], and [0033] of the as-filed specification, which describe one embodiment of the invention, provide:

[0029] A riser card assembly 380 couples one or more peripheral cards 10 to the motherboard 105. The riser card assembly 380 comprises a mounting portion 390 and a routing portion 395. **The mounting portion 390 is coupled to any one of the card connectors 160 on circuit board 105 and includes one or more secondary card connectors 393, each secondary card connector 393 for receiving a peripheral card 10 and orienting that peripheral card 10 relative to the motherboard 105 in a configuration providing a small form factor. By way of example, as illustrated in FIG. 5, the mounting portion 390 may comprise a substantially vertical riser card inserted into a card connector designated 160m and having two secondary card connectors 393 secured thereto – one secondary card connector 393 mounted on each of opposing sides of the vertical riser card. Each secondary card connector 393 is adapted to receive a peripheral card 10 and to orient that peripheral card 10 substantially parallel to the motherboard 105.**

[0031] **The mounting portion 390 includes circuitry or other communication paths to couple the signal lines 162 received at its mating card connector 160m to one of the secondary card connectors 393.** Thus, one peripheral card 10 attached to mounting portion 390 will receive signals – i.e., REQ#, GNT#, PCI CLK, interrupt requests, address and data signals, and transaction control signals – from chip set 170 via the card connector 160m and mounting portion 390. For example, the mounting portion 390 may include circuitry to couple at least a REQ# line 162a and a GNT# line 162b from the card connector 160m to one peripheral card 10, as well as its mating secondary connector 393. All other peripheral cards 10 attached to mounting portion 390 are coupled to the chip set 170 via the routing portion 395, as will be explained in greater detail below.

[0033] As noted above, the mounting portion 390 couples (via circuitry on mounting portion 390 and signal lines 162 at its mating card connector 160m)

only one peripheral card 10 to the chip set 170. The routing portion 395 routes all of the signal lines 162 – or a selected portion thereof – coupled to an adjacent card connector 160r from that card connector 160r to the mounting portion 390. ***The routing portion 395 includes circuitry or other communication paths to couple the signal lines 162 received at its mating card connector 160r to corresponding communication paths on the mounting portion 390, the mounting portion 390, in turn, routing these corresponding communication paths to another one of the secondary card connectors 393 mounted thereon.*** Thus, a second peripheral card 10 may be attached to mounting portion 390, and this peripheral card will receive signals from chip set 170 via the card connector 160r, routing portion 395, and mounting portion 390. For example, the routing portion 395, as well as the mounting portion 390, may each include circuitry to couple at least a REQ# line 162a and a GNT# line 162b from the card connector 160r to the second peripheral card 10 and its mating secondary connector 393. It should be understood that the card connector 160r (receiving routing portion 395) and the card connector 160m (receiving mounting portion 390) do not necessarily lie directly adjacent to one another but, rather, may be separated by one or more intervening card connectors 160.

Anticipation Rejections Under 35 U.S.C. § 102

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989).

Anticipation Rejection Based on United States Patent 6,004,139 to Dramstad et al.

Claims 1, 2, 3, 5-8, 33-35, and 40-46 were rejected under 35 U.S.C. § 102(b) as being anticipated by United States Patent 6,004,139 to Dramstad et al. (hereinafter “Dramstad”). Applicant respectfully traverses this rejection as set forth below.

1. (Amended) An apparatus comprising:

- a mounting portion including ***a first communication path*** to route at least one signal line from a first card connector on a circuit board to a ***first card connector on the mounting portion***; and
- a routing portion including a communication path, the communication path of the routing portion to route at least one signal line from a second card connector on the circuit board to the mounting portion, a ***second communication path of the mounting portion to route the at least one signal line of the second card connector on the circuit board to a second card connector on the mounting portion.***

Each of independent claims 33 and 46 recites some limitations similar to those recited in claim 1.

The Dramstad patent is directed to a memory card adapter enabling a system equipped with older 30-pin SIMMs (Single In-Line Memory Modules) to accept newer 72-pin SIMMs and to a memory card adaptor enabling a system equipped for accepting SIMMs to accept DIMMs (Dual In-Line Memory Modules). Column 1, Lines 31-43; Column 2, Lines 7-17. The memory card adaptor is plugged into a plurality of SIMM sockets, thereby enabling a DIMM (or a 72-pin SIMM) coupled with the adaptor to emulate a plurality of SIMMs and permitting older computer systems to utilize newer memory expansion cards. Column 2, Lines 27-46.

In one embodiment disclosed in FIG. 6 of Dramstad, a memory card adaptor 50 has a DIMM socket 51 mounted thereto, and the memory card adaptor 50 is coupled with a motherboard 54 having two SIMM sockets 52, 53 disposed thereon. Column 5, Lines 1-4. The DIMM socket 51 on adaptor card 50 is electrically coupled to one of the SIMM sockets (i.e., socket 52) via electrical conductors 59a in the adaptor card 50 itself. Column 5, Lines 21-30. The DIMM socket 51 is electrically coupled to the other of the SIMM sockets (i.e., socket 53) via a ribbon cable 58 and electrical conductors 59 in the adaptor card 50. Column 5, Lines 12-20 and 31-34. **Therefore, both SIMM sockets 52, 53 on motherboard 54 are coupled to the same DIMM socket 51 on the adaptor card 50.**

In another embodiment disclosed in FIG. 7 of Dramstad, a memory card adaptor 66 having a 72-pin SIMM socket 60 is coupled to a motherboard 61 having four 30-pin SIMM sockets 62, 63, 64, 65 mounted thereon. Column 5, Lines 35-42. The 72-pin SIMM socket 60 is coupled to a first of the 30-pin SIMMs (i.e., socket 62) via electrical conductors 81 on the adaptor card 66 itself. Column 5, Lines 42-45 and 55-59. The 72-pin SIMM socket 60 is coupled to a second of the 30-pin SIMMs (i.e., socket 63) via a ribbon cable 70 and electrical conductors 82 in the adaptor card 66. Column 5, Lines 46-54 and 60-63. Similarly, the 72-pin SIMM socket 60 is coupled to a third of the 30-pin SIMMs (i.e., socket 64) via a ribbon cable 71 and electrical conductors 82, whereas the 72-pin SIMM socket 60 is coupled to a fourth of the 30-pin SIMMs (i.e., socket 65) via a

ribbon cable 72 and electrical conductors 82. Column 5, Lines 46-54 and 60-63. Thus, all four 30-pin SIMM sockets 62, 63, 64, 65 on motherboard 61 are coupled to the same 72-pin SIMM socket 60 on adaptor card 66.

For all embodiments disclosed in Dramstad, all sockets on the motherboard are coupled to the same socket on the adaptor card, and the Examiner has not identified any language or teaching in Dramstad to the contrary. Note that, in FIG. 7, the connectors 67, 68, 69 on adaptor card 66 are simply for receiving the ribbon cables 70, 71, 72, respectively, and these connectors are not for receiving a memory module (e.g., a 72-pin SIMM or a DIMM) or other expansion card. Similarly, in FIG. 6 of Dramstad, the connector 55 on adaptor card 50 is for receiving ribbon cable 58 and not for receiving a memory module or expansion card.

In contrast to the structure disclosed by Dramstad, claim 1 recites an apparatus that couples a first card connector on a circuit board to a first card connector on a mounting portion and, further, that couples a second card connector on the circuit board to a **second card connector on the mounting portion**, which limitations are not disclosed by Dramstad. It follows, therefore, that Dramstad does not disclose a “**second communication path**” on a mounting portion, wherein this second communication path can “route the at least one signal line of the second card connector on the circuit board to a second card connector on the mounting portion.”

In summary, the Dramstad patent fails to disclose at least the above-noted limitations of claims 1, 33, and 46, respectively. Therefore, each of claims 1, 33, and 46 is novel in view of Dramstad. Also, claims 2, 3, 5-8, 40, and 41 are allowable as depending from novel, independent claim 1, and claims 34 and 35 are allowable as depending from novel, independent claim 33.

Independent claims 9 and 21 are novel in view of Dramstad for at least the reasons set forth above. Thus, claims 42 and 43 are allowable as depending from novel, independent claim 9, and claims 44 and 45 are allowable as depending from novel, independent claim 21.

Obviousness Rejections Under 35 U.S.C. § 103

To reject a claim or claims under 35 U.S.C. § 103, the Examiner bears the initial burden of establishing a prima facie case of obviousness. M.P.E.P. § 2142. When establishing a prima facie case of obviousness, the Examiner must set forth evidence showing that the following three criteria are satisfied:

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references (or references when combined) must teach or suggest all the claim limitations. M.P.E.P. § 2143.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the applicant's disclosure. M.P.E.P. § 2142 (citing *In re Vaeck*, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991)). Also, the evidentiary showing of a motivation or suggestion to combine prior art references "must be clear and particular." *In re Dembiczak*, 175 F.3d 994, 999, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999).

Obviousness Rejection Based on United States Patent 6,004,139 to Dramstad et al. in View of United States Patent 6,046,912 to Leman

Claims 9-14, 16-26, 28-32, 36-39, 48-50, 52-58 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Dramstad patent in view of United States Patent 6,046,912 to Leman (hereinafter "Leman"). Applicant respectfully traverses this rejection as set forth below.

Claims 9-14, 16-26, and 28-32

Claim 9 recites:

9. (Amended) An apparatus comprising:
 - a circuit board;
 - a processor disposed on the circuit board;

a chip set disposed on the circuit board and coupled to the processor;
a first card connector disposed on the circuit board and coupled to the chip set
by at least one signal line;
a second card connector disposed on the circuit board and coupled to the chip set
by at least one signal line;
a mounting portion secured in the first card connector on the circuit board, the
mounting portion including a *first communication path* to couple the at
least one signal line of the first card connector on the circuit board to a
first card connector disposed on the mounting portion; and
a routing portion secured in the second card connector on the circuit board, the
routing portion including a communication path to couple the at least one
signal line of the second card connector on the circuit board to the
mounting portion, a *second communication path of the mounting
portion to couple the at least one signal line of the second card
connector on the circuit board to a second card connector disposed on
the mounting portion.*

Independent claim 21 recites some limitations similar to those recited in independent claim 9.

The disclosure of the Dramstad patent is summarized above. Leman discloses a motherboard 300 having an attached riser board 304. Column 2, Lines 43-45; FIG. 3. An adapter 302 couples a PCI bus on motherboard 300 to a PCI bus on riser board 304, the adapter 302 coupled between a PCI connector 306 on motherboard 300 and a connector 308 on riser board 304. Column 2, Lines 44-48. The riser board provides one or more connectors 310 for receiving PCI add-in cards oriented substantially parallel to the motherboard 300. Column 2, Lines 48-52. In "another embodiment" of the Leman patent, a riser board 500 is directly connected to the PCI slot 306 on motherboard 300, and an adapter (e.g., adapter 302 of FIG. 3) is not necessary. Column 3, Lines 15-18; FIG. 5.

In the embodiment of FIG. 3 of Leman, the adapter 302 is inserted into the PCI slot 306, and the riser board 304 is mechanically attached to the motherboard 300. The riser board 304 is not inserted or otherwise coupled with a PCI slot on the motherboard 300 (see FIG. 3 and accompanying text). In the embodiment of FIG. 5, the riser board 500 is shown inserted into the PCI slot 306 on motherboard 300, and the embodiment of

FIG. 5 does not include an adapter 302. Thus, for either of the embodiments of FIGS. 3 and 5, respectively, all signals to the riser board (304 or 500) are routed through a single PCI slot 306.

It is respectfully pointed out that either embodiment (FIG. 3 or FIG. 5) of the Leman patent discloses one problem identified in the prior art that the present invention overcomes. More specifically, either embodiment disclosed in Leman would require a customized motherboard to route all signals through the single PCI card slot 306 to which the adapter 302 of FIG. 3, or the riser board 500 of FIG. 5, is coupled. Avoiding the use of customized motherboards by eliminating the need for routing additional signal paths through a single card slot is one problem the present invention overcomes. Specification, at paragraphs [0008] and [0024].

As set forth above, Dramstad fails to disclose a mounting portion having first and second card connectors, wherein a **“second communication path”** on the mounting portion can “route the at least one signal line of the second card connector on the circuit board to [the] second card connector on the mounting portion” (a first communication path on the mounting portion routing at least one signal line from a first card connector on the circuit board to the first card connector on the mounting portion). Leman also fails to disclose these limitations.

In summary, Dramstad and Leman, either individually or in combination, fail to teach or suggest at least the above-noted limitations of independent claims 9 and 21. Also, if an independent claim is nonobvious, then any claim depending from the independent claim is also nonobvious. M.P.E.P. §2143.03 (citing *In re Fine*, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988)). Therefore, claims 10-14 and 16-20 are allowable as depending from nonobvious, independent claim 9, and claims 22-26 and 28-32 are allowable as depending from nonobvious, independent claim 21.

Claims 48-50 and 52-58

Each of claims 48-50 and 52-58 depends from independent claim 46. For the reasons set forth above, claim 46 is nonobvious in view of the Dramstad and Leman patents, either individually or in combination. If an independent claim is nonobvious, then any claim depending from the independent claim is also nonobvious. M.P.E.P.

§2143.03 (citing *In re Fine*, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988)). Therefore, claims 48-50 and 52-58 are allowable as depending from nonobvious, independent claim 46.

Claims 36-39

Independent claim 36 recites:

36. (Amended) A method comprising:
securing a mounting structure to a first card connector on a circuit board;
securing a routing structure to a second card connector on the circuit board;
routing at least one signal line from the first card connector on the circuit board
through a first communication path of the mounting structure to a first
card connector on the mounting structure;
routing at least one signal line from the second card connector on the circuit
board through a communication path of the routing structure to the
mounting structure; and
*routing the at least one signal line of the circuit board second card connector
through a second communication path of the mounting structure to a
second card connector on the mounting structure.*

For at least the reasons set forth above, Applicant submits that claim 36 is nonobvious in view of Dramstad and Leman, either individually or in combination. Also, if an independent claim is nonobvious, then any claim depending from the independent claim is also nonobvious. M.P.E.P. §2143.03 (citing *In re Fine*, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988)). Therefore, claims 37-39 are allowable as depending from nonobvious, independent claim 36.

Claim Objections - Allowable Subject Matter

Claims 4, 15, 27, and 51 were objected to as being dependent upon a rejected base claim, but each of these claims would be allowable if rewritten in independent form. Final Office Action, at page 17. As set forth above, each of independent claims 1, 9, 21, and 46 is patentable in view of the cited prior art. Thus, Applicant submits that each of claims 4, 15, 27, and 51 is patentable as written in dependent form.

CONCLUSION


Applicant submits that claims 1-58 are in condition for allowance and respectfully requests allowance of such claims.

Please charge any shortages and credit any overages to our Deposit Account No. 02-2666.

Respectfully submitted,

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